

What Is Claimed Is:

Sub 1. A network synchronization system for a network wherein a plurality of buses are connected in a tree-like configuration by means of a bridge which has a plurality of portals each of which has a function of a node of the IEEE 1394 standard and to each of which a single bus which complies with the IEEE 1394 standard is connected, comprising:

a network clock reference node functioning as a reference clock source for the entire network and as a cycle master prescribed in the IEEE 1394 standard, one of the portals included in said network being set as said network clock reference node; and

a local clock reference node provided for each of the other buses than the bus to which said network clock reference node is connected and serving as a cycle master prescribed in the IEEE 1394 standard for the bus to which said local clock reference node is not connected, one of the portals connected to each of said the other buses which has the least number of hops of nodes up to said network clock reference node being set as said local clock reference node, said local clock reference node including means for synchronizing a cycle frequency thereof with a cycle frequency of said network clock reference node.

2. A network synchronization method for a network wherein a plurality of buses are connected in a tree-like configuration by means of a bridge which has a plurality of

portals each of which has a function of a node of the IEEE 1394 standard and to each of which a single bus which complies with the IEEE 1394 standard is connected, comprising:

5 a first step of determining a network clock reference node which functions as a reference clock source for the entire network and as a cycle master prescribed in the IEEE 1394 standard;

10 a second step of determining a local clock reference node which functions as a cycle master which synchronizes a cycle frequency thereof with a cycle frequency of said network clock reference node;

15 a third step performed by each of said network clock reference node and the local clock reference node or nodes of setting all of the other portals than said network clock reference node or the local clock reference node connected to the bus to which said network clock reference node or the local clock reference node is connected as non-reference nodes; and

20 a fourth procedure performed by each of said network clock reference node and said non-reference nodes of setting all of the other portals of the bridge to which said network clock reference node or the non-reference node is connected as the local clock reference node.

25 3. A network synchronization method as claimed in claim 2, wherein said first step is performed manually by a manager of said network.

4. A network synchronization method as claimed in claim

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reference node periodically performs control of increasing or decreasing a cycle_offset field of the CYCLE_TIME register of said local clock reference node with a fixed number so that a difference between a portion of said CYCLE_TIME register of
5 said local clock reference node having an equal bit width to that of the synchronizing signal and the value of the synchronizing signal may be fixed.

9. A network synchronization method as claimed in claim 8, wherein a period in which the control is performed is equal
10 to a time for 3,072 clocks of a clock source of 24.576 megahertz included in the local clock reference node.

10. A network synchronization method as claimed in claim 4, wherein the synchronizing signal is a pulse signal which is generated at a timing at which the value of a cycle_offset
15 field of a CYCLE_TIME register of the node from which the synchronizing signal is transmitted becomes equal to a predetermined value.

11. A network synchronization method as claimed in claim 10, wherein the predetermined value is one of integers equal
20 to or greater than 1,000 but equal to or smaller than 3,070.

12. A network synchronization method as claimed in claim 10, wherein said local clock reference node includes a counter which counts up with a clock source of 24.576 megahertz and returns its count value to 0 when the count value becomes equal
25 to 3,071 but is set to a predetermined value when the pulse signal is received, and periodically performs control of

increasing or decreasing the cycle_offset field of the CYCLE_TIME register of said local clock reference node with the fixed number so that the difference between the count value of said counter and the value of the cycle_offset field of the CYCLE TIME register may be equal.

13. A network synchronization method as claimed in claim 10, wherein the local reference node performs, each time the pulse signal is received, control of increasing or decreasing the cycle_offset register of the CYCLE_TIME register thereof with a fixed number so that the value of the cycle_offset field when the pulse signal is received may be equal to a predetermined value.

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